Remarks

Applicants have received and carefully reviewed the Office Action mailed June 14, 2006. Claims 1, 7, 8, 20, 23, and 29 have been amended and claim 28 has been canceled. Support for the amendments and new claim is found in the specification, claims, and drawings as originally filed. No new matter has been added. Reconsideration and allowance of the pending claims are respectfully requested.

Objection to the Specification

The Examiner objected to the specification because of various informalities. The specification has been amended as suggested by the Examiner.

Rejections under 35 U.S.C. § 102(b) & (e)

Claims 1-5, 7, 8, 20-27, 31, and 32 are rejected as being anticipated by Yang et al.. Independent claim 1, as amended, recites a eutectic bond between at least one of the first and second wafers or between the second and third wafers. Yang et al. do not appear to teach such an element. Yang et al. teach anodically bonding a Pyrex wafer insulating layer to a silicon wafer patterned with cathode metal. See page 2, lines 8-10. Yang et al. also disclose that an approach using Si-Au eutectic was proposed and that Si-Au eutectic bonding and other eutectic systems are under consideration. See page 4, line 19, and page 5, lines 4-5. Yang et al., however, do not appear to teach a device in which eutectic bonding is actually accomplished. Additionally, as Yang et al. appear to merely state that eutectic bonding is being considered, there is no reasonable expectation of success in using such bonding for the sapphire, Pyrex, and silica wafer structure taught by Yang et al.

Independent claims 20 and 23, as amended, recite silica wafers bonded with a eutectic material. Yang et al. do not appear to teach such a structure. Yang et al. teach a sapphire anode wafer, a Pyrex insulating wafer, and silicon cathode wafer. As acknowledged by the examiner, Yang et al. fail to teach all silicon wafers. As discussed above, Yang et al. also fail to teach eutectic bonding. Further, there is no motivation for one of ordinary skill in the art to modify the

device of Yang et al. to achieve the structure as now recited in independent claims 1, 20, or 23, or the claims dependent thereon. Reconsideration and withdrawal of the rejection are respectfully requested.

Claims 1-4, 20-27, 31, and 32 are rejected as being anticipated by Eden et al. (US 2004/0100194A1). Independent claim 1, as amended, recites a eutectic bond between at least one of the first and second wafers or between the second and third wafers. Independent claims 20 and 23, as amended, recite silica wafers bonded with a eutectic material. Eden et al. do not appear to teach such a structure. Eden et al. teach that "conventional plastic laminate, glass, quartz or mica may be used to seal the device 500." See paragraph [0070]. Eden et al. also teach "[o]ne method for sealing the microdischarge photodetector with a window in an inexpensive package is with glass frit." See paragraph [0071]. Eden et al. thus do not appear to teach or suggest eutectic bonding as is now recited in independent claims 1, 20, or 23, and the claims dependent thereon. Additionally, there is no motivation for one of ordinary skill in the art to modify the teachings of Eden et al. to use eutectic bonding. Further, there is no reasonable expectation of success in making such a modification. Reconsideration and withdrawal of the rejection are respectfully requested.

Rejections under 35 U.S.C. § 103(a)

Claims 5 and 6 re rejected as being unpatentable over Eden et al. For at least the reasons set forth above, Eden et al. fail to teach the elements of independent claim 1, from which claims 5 and 6 depend. Additionally, there is no motivation for one of ordinary skill in the art to modify the device of Eden et al. to achieve the device as recited in claims 5 and 6. As acknowledged by the Examiner, Eden et al. teaches Ne as a suitable gas for use in the cavity, however, Eden et al. does not teach or suggest a mixture of H_2 and Ne as recited in the claims. The Examiner asserts that hydrogen advantageously controls capacitance of the discharge cell and improves amplification, but does not cite a reference or source to support this assertion. The Examiner appears to be taking Official Notice of this statement. Applicants submit that the facts asserted to be well known are not capable of instant and unquestionable demonstration as being well-

known. Per MPEP 2144.04(C), Applicants respectfully traverse the taking of Official Notice and request the Examiner provide documentary evidence supporting the rejection in the next office action if the rejection is maintained.

Claims 9-12 and 28-30 are rejected as being unpatentable over Yang et al. in view of Eden et al. For at least the reasons set forth above, Yang et al. and Eden et al. fail to teach the elements of independent claims 1 and 23, from which claims 9-12 and 28-30 depend. Additionally, there is no motivation for one of ordinary skill in the art to modify Yang et al. to substitute a silica wafer for the sapphire wafer specifically taught by Yang et al. Yang et al. specifically teach using sapphire for providing a UV transmitting window because of better availability of the material. Additionally, Yang et al. specifically teach using Pyrex for the middle wafer instead of silica to eliminate the silicon oxidation and deep RIE process. See page 2, lines 6-9. The Pyrex wafer specifically taught by Yang et al. appears to have a different coefficient of expansion than the silica wafer of Eden et al. Yang et al. also teach an advantage of their sapphire/Pyrex wafer system as allowing the wafers to be subject to a high temperature bakout before they are brought to contact and bond at a lower temperature, thus allowing the device to operate under extreme temperatures to meet very stringent requirements such as in engine controls. See pages 1-2. In view of the specific advantages of the sapphire/Pyrex wafer device taught by Yang et al., there is no motivation for one of ordinary skill in the art to substitute silica wafers, as asserted by the Examiner. Such a substitution would appear to go against the specific teachings and objectives disclosed by Yang et al. Further, even if one were to make such a substitution, there is no reasonable expectation of success in making such a modification.

Regarding claim 30, the Examiner acknowledges that neither Yang et al. nor Eden et al. teach a gas mixture including both H_2 and Ne. Again the Examiner appears to be taking Official Notice that such a combination would have been obvious. Applicants respectfully traverse the taking of Official Notice and request the Examiner provide a reference for the asserted facts if the rejection is maintained. Reconsideration and withdrawal of the rejection are respectfully requested.

Reconsideration and reexamination are respectfully requested. It is submitted that, in light of the above remarks, all pending claims are now in condition for allowance. If a telephone interview would be of assistance, please contact the undersigned attorney at 612-359-9348.

Respectfully submitted,

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